

Date: Tue, 26 Oct 93 04:30:20 PDT
From: Ham-Ant Mailing List and Newsgroup <ham-ant@ucsd.edu>
Errors-To: Ham-Ant-Errors@UCSD.Edu
Reply-To: Ham-Ant@UCSD.Edu
Precedence: Bulk
Subject: Ham-Ant Digest V93 #90
To: Ham-Ant

Ham-Ant Digest Tue, 26 Oct 93 Volume 93 : Issue 90

Today's Topics:

 Antenna Basics
 Bunk-Bed Antenna
 Dual band twinlead J-pole?
 Dual Mobile Mirror-Mount Antennas?
 Feeding a grounded 12 metre tower?
 J-Pole lobe (radiation pattern) (2 msgs)
 Larsen 2M 5/8 mobile (2 msgs)

Send Replies or notes for publication to: <Ham-Ant@UCSD.Edu>

Send subscription requests to: <Ham-Ant-REQUEST@UCSD.Edu>

Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Ham-Ant Digest are available
(by FTP only) from UCSD.Edu in directory "mailarchives/ham-ant".

We trust that readers are intelligent enough to realize that all text
herein consists of personal comments and does not represent the official
policies or positions of any party. Your mileage may vary. So there.

Date: 25 Oct 93 19:02:01 GMT
From: ogicse!hp-cv!sdd.hp.com!col.hp.com!srngenprp!alanb@network.ucsd.edu
Subject: Antenna Basics
To: ham-ant@ucsd.edu

Jerry Hargrove (jerryh@cac.washington.edu) wrote:

: Being somewhat antenna illiterate (an understatement), I have the
: following questions: When building antennas for receiving only, do I
: need to follow the same guidelines as for building antennas for
: transmitting? Are there specific antenna designs that are receive only?
: Any help would be appreciated, the less technical, the better. Thanks ...

Antennas are reciprocal, meaning they have the same gain and directive
pattern on receive and transmit. So you would think that the same criteria
would apply in designing transmit and receive antennas.

However, antenna efficiency is much less important for a receive antenna than a transmit antenna (at least below 30 MHz or so.) The reason is that most receivers have much more sensitivity than is required. If the antenna has 10 dB (10 times) loss, then the both the desired signal as well as the noise and interference are all reduced by 10 dB, so the signal-to-noise ratio is the same.

For a transmitter, however, 10 dB of loss in the antenna makes your transmitted signal 10 times weaker. Your 100 watt transmitter now sounds like a 10 watt transmitter. That's why you can hear stations from all over the world with a 10 foot hunk of wire thrown out the window, but if you want to transmit to those same stations, you are better off with a high, full-sized antenna.

For receiving, the antenna does not even have to be resonant. A mismatch between antenna and feedline does reduce the received signal level, but as mentioned above, it reduces the noise and interference by the same amount.

AL N1AL

Date: Mon, 25 Oct 1993 11:55:11 EDT
From: dog.ee.lbl.gov!agate!usenet.ins.cwru.edu!news.ecn.bgu.edu!psuvax1!psuvm!
sjp117@network.ucsd.edu
Subject: Bunk-Bed Antenna
To: ham-ant@ucsd.edu

Whenever this idea get's to stupid to continue reading just move on.

THE SITUATION: I live on the 6th floor of an apartment building in
central Pennsylvania.

THE NEED: To MONITOR 118-160 with special attention to 146 MHz and 155 MHz

THE PROBLEM: I am an antenna idiot.

THE SOLUTION: While laying in bed I was thought of this. I have a bunk bed with nothing on top of it. The top is approx 3.5' x 6.5' I am considering getting a piece of 4'x 4' plywood and covering it with something metal, aluminum foil, sheet tin, chicken wire or window screen. I would then erect a 1/4 wave vertical perpendicular to the plywood in the center of the wood. Coax it to a RECEIVER only and see what happens.

THE REASONING: It would be an attempt to simulate a car roof on the top of my bunk bed. It would give an infinite amount of "greater

than 1/4 wavelength" radials. It would be fun and inexpensive to find out! I haven't found a dipole yet that works well.

THE QUESTIONS: Any suggestions?
Should I use a 1/4 1/2 or 5/8 wavelength vertical?
Should I seek professional medical help?

Steven Pellegrino
646 E. College Ave Apt. 603
State College, PA. 16801
(814) 867-0223

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/ |X| \ ----
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Date: 25 Oct 93 20:02:31 GMT
From: ogicse!emory!sol.ctr.columbia.edu!math.ohio-state.edu!news.acns.nwu.edu!
casbah.acns.nwu.edu!lapin@network.ucsd.edu
Subject: Dual band twinlead J-pole?
To: ham-ant@ucsd.edu

In article <CF97GI.7qr@wang.com>, Dave Jenkins <djenkins@wang.com> wrote:

>
>
>Also, what, if anything, does it mean that my 2M twin lead J-pole already
>matches almost as well on 440 at it does on 2M?
>
>73, Dave, n1mxv
>--
>David E. Jenkins Home: (508) 632-4164 Wang Labs, Inc.
>52 Norman Street Work: (508) 967-7284 M/S 014-690
>Gardner, MA 01440-1916 Fax: (508) 967-2212 1 Industrial Ave.
>AX25: n1mxv@walphy.ma e-mail: djenkins@wang.com Lowell, MA 01851
>

Every 2-meter J-pole that I have made have made has tuned up well on 440 MHz. That is because part of the 440 MHz ham band is almost exactly the third harmonic of 2 meter ham frequencies (the same reason you can use a 40 meter dipole on 15 meters).

Greg Lapin KD9AZ

Date: 26 Oct 1993 01:26:01 GMT
From: koriel!newscast.West.Sun.COM!news2me.EBay.Sun.COM!exodus.Eng.Sun.COM!
oversteer!wdh@ames.arpa

Subject: Dual Mobile Mirror-Mount Antennas?
To: ham-ant@ucsd.edu

In article 28501@ke4zv.atl.ga.us, gary@ke4zv.atl.ga.us (Gary Coffman) writes:

>In article <VERN.L.SUTER-221093135725@mac_arhbld3n2_148.subnet66.cdc.com>

VERN.L.SUTER@cdc.com (Vern Suter) writes:

>>What's the deal with these vehicles (usually trucks) that have a
>>mirror-mounted vertical antenna mounted on each side of the vehicle? I
>>believe these are usually CB installations. Is there any benefit to having
>>two antennas on the vehicle as opposed to having a single one or does this
>>just look "cool"?

>

>This is called a "co-phased" antenna. It's two vertical radiators
>connected by a phasing harness. At a spacing of about 8 feet, and
>fed from a Tee by two 1/4 wave 75 ohm cables, the antenna gives
>a figure 8 pattern that's aligned broadside to the antennas, IE
>up and down the road. That's just what the trucker wants. The gain
>is only 3 db, but the null off the sides can be quite sharp.

>

>Gary

>

>--

>Gary Coffman KE4ZV	"If 10% is good enough	gatech!wa4mei!ke4zv!gary
>Destructive Testing Systems	for Jesus, it's good	uunet!rsiatl!ke4zv!gary
>534 Shannon Way	enough for Uncle Sam."	emory!kd4nc!ke4zv!gary
>Lawrenceville, GA 30244	-Ray Stevens	

I wonder if the ground connection at the typical mirror mount is good RF-wise. My own experience indicates that a mobile antenna on the body is much better than the same antenna on the nearby bolt-on fender. It does not appear that a mirror is good ground to the door nor that the door would be a good ground to the body.

When I see co-phased antennas on trucks I wonder if one antenna bolted and grounded on the metal roof wouldn't be more efficient and thus better overall. Of course today's aerodynamic trucks look to be mostly plastic/fiberglass over the cab and this wouldn't be a good location...

...Dennis Henderson, N6TTW

Date: Mon, 25 Oct 1993 14:52:54 GMT

From: swrinde!cs.utexas.edu!utnut!torn!newshost.uwo.ca!uwovax.uwo.ca!
37147_1234@network.ucsd.edu

Subject: Feeding a grounded 12 metre tower?

To: ham-ant@ucsd.edu

--

M. H. Sherebrin
Associate Professor
Dept. of Medical Biophysics
Univ. of Western Ontario
London, Ontario, Canada N6A 5C1

email: sherebrin@uwovax.uwo.ca

I have a 40 foot tower that I just removed 2 beams from for renovation.
Meanwhile I want to use the grounded tower as a shunt fed vertical (using
a gamma match or some similar system. Any suggestions, ideas, references,
or comments would be much appreciated. Many thanks.

40 feet translates to about 12 metres and it is grounded at bottom.

Marv.
VE3FHX

.

Date: 25 Oct 93 18:24:03 GMT
From: rtech!ingres!garys@decwrl.dec.com
Subject: J-Pole lobe (radiation pattern)
To: ham-ant@ucsd.edu

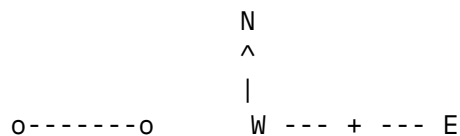
I have a couple of questions concerning j-pole antennas:

- 1) How directional are they?
- 2) What is their radiation pattern (lobe)?

ie.



SIDE VIEW



TOP VIEW |
 |
 S

Thanks,
-garys, KE6BYU

Date: 25 Oct 1993 19:16:15 GMT
From: olivea!korie!newscast.West.Sun.COM!abyss.West.Sun.COM!sunspot!
myers@uunet.uu.net
Subject: J-Pole lobe (radiation pattern)
To: ham-ant@ucsd.edu

In article 26432@pony.Ingres.COM, garys@Ingres.COM (Gary Swiger) writes:
>I have a couple of questions concerning j-pole antennas:
>
>1) How directional are they?
>2) What is their radiation pattern (lobe)?
>

Ideally, a J-pole is an end-fed vertical half wave monopole.
The bottom of the J is a quarter-wave balanced transmission line
with an impedance of around 200 ohms, used to transform the rather
high impedance of the end-fed half-wave to something around
50 ohms.

In a perfect world. the quarter wave section is fed with a balanced
signal, but most people don't do this, instead feeding the
matching section with unbalanced co-ax.

In the real world, a J-pole will couple to the feed-line, making
the feedline part of the radiating antenna system, and this
will have unpredictable results. Feeding the antenna with a 4:1
coaxial balun is better, but can still give unpredictable results
due to the difficulty of tuning the 4:1 coaxial balun.

To answer your question, it really depends on the installation.
I built a J-pole with 3/4in copper tubing, fed it with a 4:1 balun
constructed with a VHF ferrite core, running the feedline away in a
loop so as to lower the coupling to the matching section. This was
more sanitary and considerably easier than the coaxial balun, and
had a very flat match.

The antenna, in subjective testing, appeared to be essentially omni-directional.

* Dana H. Myers KK6JQ, DoD 466 | Views expressed here are
*
* (310) 348-6043 | mine and do not necessarily *
* Dana.Myers@West.Sun.Com | reflect those of my employer
*
* This Extra supports the abolition of the 13 and 20 WPM tests *

Date: 25 Oct 93 17:04:04 GMT
From: gummy!destroyer!nntp.cs.ubc.ca!unixg.ubc.ca!unixg.ubc.ca!dcameron@yale.arpa
Subject: Larsen 2M 5/8 mobile
To: ham-ant@ucsd.edu

Hello there, I just have some questions about some 2M mobile antennas.
I just aquired an NLA-150 (I think) which was very rusted on the whip.
I was wondering how many people out there use this type of antenna.

This antenna looks like it has never been cut before for matching.
I think it was used for some commercial company which ran on 143 MHz. Will
this antenna work on an FT-530? That is the radio I am going to buy this
weekend. I just wanted to know if anyone has tried to match one of these
puppie.

- 1) How good can you get the match from 144-148.
- 2) Can you use this antenna for base applications?
- 3) Is the black based Kulrod T antennas any better?
- 4) Will sanding off the corrosion on the anntenna effect the
performance in a negative fashion? (i.e. should I buy a new whip)

Sorry if this message is really screwed up but I really cannot use this
mail program very well :-)

Please send replys Cc my internet address,
dcameron@unixg.ubc.ca

Thanks in advance,
David Cameron
3
2)

Date: 25 Oct 1993 19:36:59 GMT

From: haven.umd.edu!cville-srv.wam.umd.edu!ham@uunet.uu.net
Subject: Larsen 2M 5/8 mobile
To: ham-ant@ucsd.edu

>Hello there, I just have some questions about some 2M mobile antennas.
>
> This antenna looks like it has never been cut before for matching.
>I think it was used for some commercial company which ran on 143 MHz. Will
>this antenna work on an FT-530? That is the radio I am going to buy this
>weekend. I just wanted to know if anyone has tried to match one of these
>puppie.
>
> 1) How good can you get the match from 144-148.
>
Remember what you know - 143 MHz has LOWER frequency than 146 MHz, which is
the center of the ham band, and a convenient frequency on which to tune
the antenna. Since 146>143, you have some extra length there.
>
> 2) Can you use this antenna for base applications?
>
Sure. Put it on something metal, like a file cabinet. Makes it sturdy,
and gives it a good ground plane.

> 3) Is the black based Kulrod T antennas any better?

Actually, this one I can't answer...

>
> 4) Will sanding off the corrosion on the antenna affect the
> performance in a negative fashion? (i.e. should I buy a new whip)
>

Actually, I think this will actually help. Most whips come painted anyhow.
>Sorry if this message is really screwed up but I really cannot use this
>mail program very well :-)

>
Scott NF3I

--

73,

-----		-----		The
\ /		Long	Original	
Scott Rosenfeld	Amateur Radio NF3I	Burtonsville, MD		Live \$5.00
WAC-CW/SSB	WAS	DXCC - 109 QSLed on dipoles	-----	Dipoles! Antenna!

Date: Mon, 25 Oct 93 19:56:04 GMT
From: ncrgw2.ncr.com!ncrhub2!torynews!kevin@uunet.uu.net
To: ham-ant@ucsd.edu

References <1993Oct20.181229.719@TorreyPinesCA.ncr.com>,
<1993Oct22.165908.10180@TorreyPinesCA.ncr.com>,
<1993Oct23.154349.28417@ke4zv.atl.ga.us>>fj
Subject : Re: SWR measurements are too good!

In article <1993Oct23.154349.28417@ke4zv.atl.ga.us> gary@ke4zv.UUCP (Gary Coffman) writes:

>
>I think what you're going to find is that your two foot jumper is
>*defective*. It should not read 1.5:1 with the end open circuited.
>It should read 20:1 or higher. Your Yagi should have a 2:1 bandwidth
>of about 5 MHz, and should show a pronounced and fairly broad dip
>about 2 MHz wide.
>
>Gary
>

Well, I guess I must admit I cheesed out on the jumper--it is one of those Rat Shack pieces of coax with the crimped-on PL259s. However my readings were consistent - my meter is one of those bird-type military meters. The power measured in the reverse direction was extremely low on the 10-watt scale, about 1/4 watt with the antenna connected. Disconnecting the antenna increased this to about 1/2 watt. Forward power with the antenna connected measured 5 1/2 watts, which is over 1/2 scale. I didn't measure forward power with the antenna disconnected.

Reversing the coax connections on the meter and rotating the slug gives the same results.

I did not measure the extent of the SWR dip in the frequency domain, only physically along the length of the gamma match. The extremely narrow physical length of the dip may or may not correspond to the antenna bandwidth--is it possible that the pieces of #8 copper wire I used for a shorting "bar", which contact the antenna element in an extremely narrow region rather than a wide region such as a flexible strap would provide, are the cause of the narrow dip?

--

Kevin Sanders, KN6FQ
kevin.sanders@torreypinesca.ncr.com
kevin%beacons@cyber.net

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